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MACROECONOMIC DECISION MODELS WITH SPECIAL EMPHASIS ON THEIR APPLICABILITY IN LESS DEVELOPED AREAS

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Macroeconomic Decision Models

with special emphasis on their applicability in less developed areas

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SUMMARY

The development problem in less developed areas has a variety of special aspects, as listed in Part III of the United Nations' "Revised Information Bulletin" (E/CONF.39/INF.1/REV.1). These special aspects have in the past attracted considerable attention, but they need much closer study as separate branches of the development problem. One generel aspect of the problem has attracted less attention and is, in my opinion, a minimum factor in development studies today, namely a rational scientific analysis of the way in which the various special aspects gear into each other. The economic coordination problem has, as I see it, been approached in a too simple manner.

The popularity of these traditional approaches is, it seems, due more to their simplicity and therefore ease of theoretical handling than to their realistic and practical use in development policies. To be specific I may mention a few of the shortcomings of the simple approaches to the economic coordination problem.

When attention is focused on such simple concepts as the savings rate and the output-to-capital ratio and forecasts of these magnitudes, one cannot take adequately account of the very thing that is vitally important in developing areas, namely an exact comparison of the various specific investment projects that might be considered. A large number of investment projects will have to be considered and compared, taking account of all their foreseable effects, direct as well as indirect. As examples of such effects may be mentioned: (a) The timeshape of the input-needs (domestic and foreign) for the execution of each specific big investment project or specific group of smaller projects. (b) The timeshape of the increase in production capacity which will follow if and when the project or group of projects is accepted. (c) The time shape of the infra-effect, i.e. the effect which the project or group of projects may have on the current account input-coefficients or other essential coefficients. (d) The effects, direct as well as indirect, which the adoption of the project or group of projects will have (in the construction period and in the subsequent operation period) on the flow of purchasing power to private households and therefore on private demand for consumer goods. All these aspects - and several others - of the investment activity must be taken account of explicitely and simultaneously when one is aiming at the "optimal utilization of ... resources" (p.3 of the "Revised Information Bulletin").

A current account input-output table in absolute figures based on data for previous years is very useful as a provisional description of the structure of the economy. But in a developing area where Government initiative is the key-note of the problem, it is misleading to convert such a table to a table of coefficients and in the traditional way (through a matrix inversion) to use these coefficients in order to derive the total production in each production sector from a list of final demands. This procedure is inadequate for a number of reasons. (a) It does not take account of the various capacities of production that will exist in each year within the planning horizon (these capacities are determined by the specific investment decisions made). (b) It does not take account of the infra-effect (which also depends on the specific investment decision made). (c) It does not take account of the substitution effect among different types of input (for instance the use of alternative sources of energy). (d) The final demands cannot be considered as data but must be considered as variables which, together with other variables, are to be determined through a comprehensive programming analysis.

Growth models (even if built on a sectorial break down) are inadequate. We need instead operational decision models with explicite specification of the large number of parameters that are subject to Government control and decision, for instance acceptance, postponement or rejection of specific big investment projects or specific groups of smaller projects; decisions on various current account operations such as the consumption policy for specific types of consumer goods etc.

Studies of the balanced-growth type (leading for instance to the time path nicknamed the "Turnpike")are inadequate. The very concept of "balance" can only be defined in a realistic way through a rational dynamic programming approach that includes simultaneously all the above aspects, at least in an approximate way. And if such an approach is followed, there is no need for introducing the concept of "balance".

On the basis of my theoretical studies and the experience gained during several stays in less developed countries (Egypt and India) I have attempted to work out a comprehensive scheme of optimal programming including simultaneously all the aspects mentioned above. Within the compass of the present short paper I can do nothing more than to indicate very briefly under 16 paragraphs the content of this analytical scheme.[1]

[1] The scheme is considered in some detail in my paper Preface to the Oslo Channel Model. ASEPELT, 1, 248-286 North-Holland Publishing Company, Amsterdam (1962). More details will be given in a paper to appear in the research series of Accademia Nazionale dei Lincei, Roma.

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